

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Makinen et al.	Examiner:	UNKNOWN
Serial No.:	TO BE ASSIGNED	Group Art Unit:	TO BE ASSIGNED
Filed:	July 19, 2001	Docket No.:	796.404USW1
Title:	CONTROL OF TRANSMISSION POWER IN A RADIO SYSTEM		

CERTIFICATE UNDER 37 C.F.R. 1.10:

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The undersigned hereby certifies that this Transmittal Letter and the paper or fee, as described herein, are being deposited with the United States Postal Service 'Express Mail Post Office To Addressee' service under 37 CFR 1.10 and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

By: 

Kari Arnold

PRELIMINARY AMENDMENT

Box Patent Application  
Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Please enter the following preliminary amendment into the above-referenced application.

ABSTRACT

Please insert the attached abstract into the application as the last page thereof.

CLAIMS

Please amend claims 1-11 as follows. A clean copy of the amended and new claims is included below. A marked up copy of the entire claim set is included in Appendix A.

1. (AMENDED) A method for controlling transmission power in a radio system having a transmitting end and a receiving end, the method comprising the steps of

- transmitting a digital signal from the transmitting end to the receiving end,  
- receiving said digital signal at the receiving end,  
- monitoring signal quality at the receiving end, and  
- adjusting the transmission power at the transmission end in accordance with the monitored signal quality, said monitoring and adjusting having the further steps of  
- monitoring pseudo error occurrence at the receiving end,  
- decreasing the transmission power when the rate of the pseudo errors is below a predetermined threshold, and  
- increasing the transmission power when pseudo errors occur so that a predetermined condition is fulfilled.

2. (AMENDED) A method as claimed in claim 1, wherein the transmission power is increased immediately when a pseudo error is detected.

3. (AMENDED) A method as claimed in claim 1, wherein the transmission power is decreased in small steps for a predetermined time period at each step.

4. (AMENDED) A method as claimed in claim 2, wherein

(a) adjusting the transmission power after the set-up of the radio system to a value high enough so that no pseudo errors are detected at the receiving end,

(b) decreasing the transmission power until the first pseudo error is detected,

(c) increasing the transmission power in response to the pseudo error detected,

and

(d) jumping to phase (b) if no pseudo errors are detected during a predetermined time period after the transmission power has been increased in phase (c).

5. (AMENDED) A method as claimed in claim 1, wherein the transmission power is increased by a small predetermined amount when said pseudo errors are detected.
6. (AMENDED) A method as claimed in claim 1, wherein
  - using forward error correction (FEC) in the transmitted signal,
  - decoding the signal at the receiving end by means of a FEC decoder, and
  - interpreting the corrections made by the decoder as pseudo errors.
7. (AMENDED) A method as claimed in claim 1, wherein using at the receiving end a demodulator provided with a first set of thresholds for making a decision on a received symbol and a second set of thresholds for making a decision on whether a pseudo error has occurred.
8. (AMENDED) A method as claimed in claim 1, wherein the further steps of
  - monitoring the rate of actual errors at the receiving end, and
  - increasing the transmission power temporarily to the maximum transmission power when a predetermined error rate threshold is exceeded.
9. (AMENDED) A radio system including
  - at a receiving end first means (SMA, SMb, 15a, 15b) for monitoring signal quality and for producing a control signal on the basis of the monitored signal quality, and
  - at a transmitting end second means (15a, 15b) for adjusting the transmission power in response to said control signal,

wherein

said first means being adapted to monitor the occurrence of pseudo errors and to produce a control signal indicating when the pseudo errors are detected and when the rate of the pseudo errors is below a predetermined threshold, whereby said second

means are responsive to said control signal by increasing the transmission power when the pseudo errors are detected and by decreasing the transmission power when the rate of the pseudo errors is below a predetermined threshold.

10. (AMENDED) A radio system as claimed in claim 9, wherein said first means include a FEC decoder (45) for decoding a FEC coded signal and for detecting pseudo errors.

11. (AMENDED) A radio system as claimed in claim 9, wherein said first means include a demodulator provided with a first set of thresholds for making a decision on a received symbol and a second set of thresholds for making a decision on whether a pseudo error has occurred.

#### **REMARKS**

The above preliminary amendment is made to insert an abstract page into the application and to amend claims 1-11

Applicant respectfully requests that this preliminary amendment be entered into the record prior to calculation of the filing fee and prior to examination and consideration of the above-identified application.

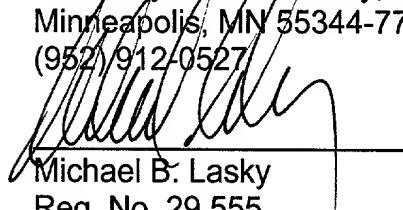
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicant's attorney of record, Michael B. Lasky at 952-912-0527.

Respectfully submitted,

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**Appendix A**  
**Marked Up Version of Entire Claim Set**

1. (AMENDED) A method for controlling transmission power in a radio system having a transmitting end and a receiving end, the method comprising the steps of
- transmitting a digital signal from the transmitting end to the receiving end,
  - receiving said digital signal at the receiving end,
  - monitoring signal quality at the receiving end, and
  - adjusting the transmission power at the transmission end in accordance with the monitored signal quality, said monitoring and adjusting having [being characterized by] the further steps of
- monitoring pseudo error occurrence at the receiving end,
  - decreasing the transmission power when the rate of the pseudo errors is below a predetermined threshold, and
  - increasing the transmission power when pseudo errors occur so that a predetermined condition is fulfilled.
2. (AMENDED) A method as claimed in claim 1, [characterized in that] wherein the transmission power is increased immediately when a pseudo error is detected.
3. (AMENDED) A method as claimed in claim 1, [characterized in that] wherein the transmission power is decreased in small steps for a predetermined time period at each step.
4. (AMENDED) A method as claimed in claim 2 [or 3], [characterized by] wherein

(a) adjusting the transmission power after the set-up of the radio system to a value high enough so that no pseudo errors are detected at the receiving end,

(b) decreasing the transmission power until the first pseudo error is detected,

(c) increasing the transmission power in response to the pseudo error detected,

and

(d) jumping to phase (b) if no pseudo errors are detected during a predetermined time period after the transmission power has been increased in phase (c).

5. (AMENDED) A method as claimed in claim 1, [c h a r a c t e r i z e d in that] wherein the transmission power is increased by a small predetermined amount when said pseudo errors are detected.

6. (AMENDED) A method as claimed in claim 1, [c h a r a c t e r i z e d by] wherein

- using forward error correction (FEC) in the transmitted signal,
- decoding the signal at the receiving end by means of a FEC decoder, and
- interpreting the corrections made by the decoder as pseudo errors.

7. (AMENDED) A method as claimed in claim 1, [c h a r a c t e r i z e d by] wherein using at the receiving end a demodulator provided with a first set of thresholds for making a decision on a received symbol and a second set of thresholds for making a decision on whether a pseudo error has occurred.

8. (AMENDED) A method as claimed in claim 1, [c h a r a c t e r i z e d by] wherein the further steps of

- monitoring the rate of actual errors at the receiving end, and

- increasing the transmission power temporarily to the maximum transmission power when a predetermined error rate threshold is exceeded.

9. (AMENDED) A radio system including

- at a receiving end first means (SMa, SMb, 15a, 15b) for monitoring signal quality and for producing a control signal on the basis of the monitored signal quality, and
- at a transmitting end second means (15a, 15b) for adjusting the transmission power in response to said control signal,

[c h a r a c t e r i z e d by] wherein

said first means being adapted to monitor the occurrence of pseudo errors and to produce a control signal indicating when the pseudo errors are detected and when the rate of the pseudo errors is below a predetermined threshold, whereby said second means are responsive to said control signal by increasing the transmission power when the pseudo errors are detected and by decreasing the transmission power when the rate of the pseudo errors is below a predetermined threshold.

10. (AMENDED) A radio system as claimed in claim 9, [c h a r a c t e r i z e d in that] wherein said first means include a FEC decoder (45) for decoding a FEC coded signal and for detecting pseudo errors.

11. (AMENDED) A radio system as claimed in claim 9, [c h a r a c t e r i z e d in that] wherein said first means include a demodulator provided with a first set of thresholds for making a decision on a received symbol and a second set of thresholds for making a decision on whether a pseudo error has occurred.